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ABSTRACT

A study compared the abilities of non-native speakers of English who have been in the United States for varying amounts of time with the ability of native speakers to perceive and produce primary stress at the phrase level. Subjects, all having at least 1 year of college education, were 10 native speakers of North American English, 6 native speakers of Spanish of any English-as-a-Second-Language (ESL) background living in the United States at least 5 years, and 10 native speakers of Spanish who had studied ESL outside the United States, attained high-intermediate English proficiency placement, and been in the United States for 1 year or less. All were administered an attitude and background questionnaire and a multiple-choice test concerning twelve sentences on tape. Results indicate a strong positive relationship between time spent in the English-speaking environment and ability to perceive and produce stress in a way that approximates that of the native speaker. It also suggests a strong relationship between using English in a variety of environments and situations and acquisition of English stress patterns. (MSE)

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Do Non-Native Speakers of English Acquire English Stress Patterns?

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1. Introduction:

It is generally agreed that the prosodic features of a language are some of the most difficult features of a language to acquire. This paper compares the abilities of non-native speakers of English who have been in the United States for varying amounts of time with the ability of native speakers to perceive and produce primary stress at the phrase level. The results of this study indicate that there is a strong positive relationship between time spent in the English-speaking environment and an ability to perceive and produce stress in a way that approximates that of the native speaker. It also suggests that there is a strong relationship between using English in a variety of environments and situations and the acquisition of English stress patterns.

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Strategies for the perception and production of stress are rarely taught. The findings in this paper indicate, however, that acquisition of English stress patterns does occur in adult second language learning, at least to some extent. This study attempts to shed light on the types of stress patterns and stress correlates that learners acquire. It also attempts to establish a baseline level of stress acquisition for adult learners whose first language is Spanish; that is, it provides information regarding the extent to which native Spanish speakers will acquire the stress patterns of English without assistance. This could have implications for language pedagogy because it would allow teachers and educational researchers to differentiate between what students are acquiring on their own and what they will need to be taught in class. This information can help teachers to gauge their students' progress, and can help researchers to

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I would like to thank Elizabeth C. Zsiga for all her advice and support. Any errors, however, are mine alone.

decide how they should focus their efforts to help students acquire English stress patterns more effectively.

1.1 Prosody, Stress and Intonation:

At this point, a summary of the differences between prosody, stress and intonation as they are relevant to these experiments is in order. Prosody, for our purposes, refers to "features of spoken language which are not easily identified as discrete segments" (Clark and Yallop, 1995, 328). In other words, they are features of the language that, unlike the [+VCE] feature of a /b/ or the [-BACK] feature of an /e/, do not belong to a single segment. Instead, they are *suprasegmental*, meaning they can be applied over many discrete phonological segments. Prosodic features include stress and intonation, and the term will be used here to refer to both, with particular emphasis on phrase-level stress.

1.2 Stress and Communicative Ability:

For language teachers, one of the most important things to recognize about English stress is that it creates patterns that are essential for effective communication. Many languages do not use stress for this purpose. However, English stress patterns are most often left to the students to acquire, which they do with questionable success. The problems that result from this inability to master L2 stress patterns manifest themselves in the everyday lives of individuals. Mistakes of this nature often convey to native speakers messages about the L2 speaker's intelligence, assertiveness, sincerity, and even his or her overall personality. Furthermore, because stress in English can be phonemic (e.g., re 'cord, 're cord), at the lexical level and pragmatic at the phrase level, the L2 speaker is presented with a nearly infinite number of opportunities to be misunderstood and misjudged by native speakers of English.

To make matters worse, native English speakers themselves often do not recognize the importance prosody plays in their own communication. Bollinger (1989), writing about intonation, points out that our early acquisition of prosody may actually impede our understanding of it. According to Bollinger, the fact that we acquire prosody in our first language so early may account for our relative lack of awareness of it and how it functions in language. For example, native speakers of English are aware of the difficulties faced by non-native speakers in areas such as grammar and the pronunciation of individual sounds, and thus can make allowances for errors. However, they seem unable to make such allowances for intonation and stress pattern errors. Many non-native speakers of English complain that native speakers have difficulty understanding their speech even when their pronunciation is careful, and then repeat back to them exactly what the non-native speaker said when they finally do understand. Such a conversation would go something like this:

NNS: I **would** like a cheese**bur**ger and onion **rings**.

NS: **What**?

NNS: I **would** like a cheese**bur**ger and onion **rings**.

NS: **Oh**! **You** want a **cheese**burger and **on**ion rings!

NNS: That's what I said.

(Where the bolded syllables are those that receive stress.)

After such an exchange, non-native speakers often come away with a feeling that the native speaker was inattentive, inflexible, or just dumb. Native

speakers often feel that the non-native speaker doesn't speak English well, and may add to that his or her own feelings about those who do not speak English well. It is sufficient to say that such exchanges, if they can be considered as such, do nothing to foster cross-cultural understanding! This provides us with yet another incentive to teach English stress.

Additionally, it may be because we are aware through our own educational experiences that such things such as grammar, vocabulary and pronunciation of a foreign language often must be explicitly taught in order to be mastered that we are able to be more forgiving of a learner's mistakes in these areas. The fact that such aspects of language as stress and intonation are not often discussed in the foreign language classroom may also lead us to believe that they are universally understood. Thus, by ignoring these aspects of language, we may inadvertantly be keeping learners and native speakers unaware of the differences in how languages use these features.

It is clear that there are still many gaps in our knowledge of how the acquisition process for second language prosody functions. Consequently, the gaps in our understanding of how to effectively teach second language prosody are even larger. This pilot study consists of two experiments which examine the aquisition of English stress patterns by native speakers of Spanish. It is hoped that a greater understanding of how these speakers acquire English stress patterns can be obtained, and that a contribution can be made to the development of the teaching of this important aspect of English communication.

2. Experiment 1

2.1 Hypothesis:

This set of experiments has been designed to test whether the English stress patterns of L1 Spanish speakers become more like the stress patterns of native English speakers over time. Thus, it is hypothesized that native Spanish speakers who have been exposed to the English-speaking environment for a long period of time will exhibit patterns of English stress that more closely mirror the stress patterns of native American English speakers than will native Spanish speakers who have not had the same level of exposure to English.

2.2) Subjects:

Subjects were all adults with at least one year of college or an equivalent education, and came from one of the three following groups:

1. A control group of native speakers of American English (N=10);

2. Native speakers of Spanish of any ESL/EFL background who have been living in the U.S. for five years or more (N=6); and

3. Native speakers of Spanish who have studied EFL outside of the United States, have attained at least a high-intermediate proficiency in English as determined by class placement and grades in their EFL program, and have been in the U.S. for one year or less (N=10).

L1 Spanish examinees were given a questionnaire designed to inquire about language education background, affective factors and restrictions on usage that may have influenced their language learning process. It was hoped that these questions would shed light on whether differences in performance that may arise

in either L2 group could be attributed to factors such as situations in which they used English or how they felt about English and English speakers. It also asks the non-native English speaking subject to respond to the statement, "Even when I pronounce all the words correctly, sometimes native speakers don't understand me". This question was meant to uncover whether the L2 speaker has met frustration at the suprasegmental level when communicating with native English speakers, and whether he or she may be aware of any difference between segmental ("pronouncing the words correctly") and suprasegmental "pronunciation" (knowing that pronouncing the words correctly was not always sufficient to communicate effectively).

2.3 Materials:

The multiple choice test contained twelve questions. Each examinee received a paper with the three options written on it corresponding to each of twelve statements they would listen to on a tape. The options listed possible prompts to an utterance the subject was to hear on the tape. Examinees were to choose which of the sentences was an appropriate lead-in to the statement on the tape (as in the game show *Jeopardy*, subjects heard the answer, and had to choose an appropriate question). The instructions read as follows:

Which sentence - A, B or C - could have come before the sentence on the tape? (In other words, the question sentence is a response to the options.) Use the speaker's emphasis to help you decide.

As there is no one correlate of stress, an effort was made to vary the features that were used to depict stress in each question. While it is impossible for humans to completely separate the indicators of stress, the people who recorded the tape for the multiple choice test were instructed to make an effort to vary the

ways in which they indicated emphatic stress. The multiple-choice test was constructed and recorded so that only one answer could possibly be correct, given the emphatic or contrastive stress pattern used. The other answers could have been correct had another word been given the emphatic or contrastive stress. Thus the non-native speakers' task was threefold: They needed to identify the different phonetic correlates used to indicate stress, realize that the stress pattern changed the meaning of the sentence, and decide how to respond.

2.4 Methodology:

The examinee was given the opportunity to look at each of the questions carefully and ask questions about the test or the questions before the test began. A cassette tape then read the directions, and then a pause was given to allow the examinee the opportunity to ask more questions. When the test began, the subject would hear the sentence or sentence fragment, followed by the three options, followed by a repetition of the sentence. Subjects could request that the tape be stopped and the question replayed as many times as they desired, in order to ensure that the answers they chose were the result of careful consideration of all options and were not affected by the examinee's speed of comprehension or memory retention.

2.5 *Scoring:*

Multiple-choice tests were scored by the investigator. An answer key was created showing the correct option as well as the word that would have needed to be stressed in order for the other two options to be correct. Examinees were given a score that indicated the number of correct answers they had given.

2.6 Results:

2.6.1 Native Speakers:

Table 1 - Native Speakers of American English

I.D.	yrs. in U.S.	country	1	2	3	4	5	7	8	9	10	11	12	total
1	N/A	N/A	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	11 (10)
2	N/A	N/A	Y	Y	Y	Y	Y	Y	Y	N	Y	Y	Y	10
3	N/A	N/A	Y	Y	Y	N	Y	Y	Y	Y	N	Y	Y	9 (8)
4	N/A	N/A	Y	Y	Y	Y	Y	Y	Y	N	Y	Y	Y	10
5	N/A	N/A	Y	Y	Y	Y	Y	Y	Y	N	Y	Y	Y	10
6	N/A	N/A	Y	Y	Y	N	Y	Y	Y	Y	Y	Y	Y	10 (9)
7	N/A	N/A	Y	Y	Y	Y	Y	Y	Y	N	Y	Y	Y	10
8	N/A	N/A	Y	Y	Y	Y	Y	Y	Y	N	Y	Y	Y	10 (9)
9	N/A	N/A	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	11 (10)
10	N/A	N/A	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	11 (10)
11	N/A	N/A	Y	Y	Y	Y	Y	Y	Y	N	Y	Y	Y	10
		%	100	100	100	82	100	100	100	55	91	100	100	

The native speaker responses shown in Table 1 determined the questions on which the non native speakers would be scored. Only those questions which had at least 80% agreement for native speakers were used. This criteria meant that non-native speakers were not judged on questions 6 and 9. In the tables for all examinees, question 6 has not been recorded because the question was deemed to be fatally flawed early in the testing stage; therefore, most examinees were told to ignore that question on the tape.

Although question 9 was answered correctly by many examinees, it is not being used to evaluate the non-native speakers because the native speakers only scored 56%, probably because of ambiguity between two of the characters. The scores in parentheses indicate the native speaker's score out of 11 possible points (including question 9). The score in parentheses is their score after question 9 was omitted. Where there is only one score for an examinee, that examinee answered question 9 incorrectly. The scores in parentheses are those that should be compared to the non-native speakers.

Because of native speaker discord over these two questions, the number of questions the non-native speakers of English were evaluated on was reduced to 10. Therefore, a score of 7 on the following tables means that the examinee answered 7 out of a possible 10 questions correctly. The scores of the 5+ group and the 1- group are given in Tables 2 and 3, respectively.

2.6.2 Spanish Speakers (Overall)

In short, this data illustrates a progression among the three groups in terms of their ability to perceive and produce the stress patterns of English, as illustrated in Table 2.

Table 2

Group Averages:

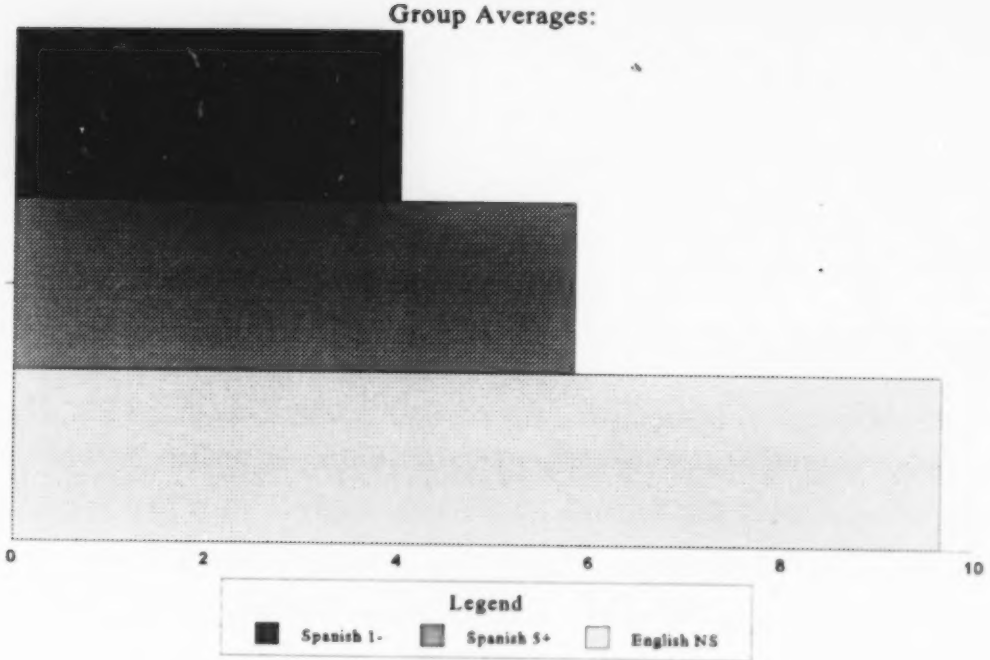


Table 3 - Native Speakers of Spanish: 5+ Group

I.D.	yrs. in U.S.	country	code	1	2	3	4	5	7	8	10	11	12	
1	6	Argentina	B	Y	Y	N	N	Y	Y	N	Y	Y	Y	7
2	15	Colombia	N	Y	Y	N	N	Y	Y	N	N	Y	N	5
3	54	Spain	B	N	Y	N	N	Y	Y	Y	Y	N	Y	6
4	7	Spain	S	Y	N	Y	N	Y	Y	Y	N	Y	Y	7
5	10	Colombia	N	Y	Y	N	N	Y	Y	N	N	Y	N	5
6	9	Argentina	N	Y	Y	Y	N	N	Y	N	N	N	Y	5
		percentage		83	83	33	0	83	100	33	33	66	66	

English Use Codes: B = Bilingual Household N = For Work/ When Necessary
S = Social Use

2.6.3 5+ Spanish Speakers:

What was remarkable about the performance of the 5+ group was its uniformity. Each member of the group scored within a very narrow range (5-7), despite the fact that they had spent widely varying lengths of time in the United States. This finding is consistent with Archibald's (1995) study of subjects' acquisition of English word stress over time, in which he concluded that very little change occurred. These results suggest that learners arrive to a point in their acquisition of English at which their ability to internalize English stress patterns becomes fossilized. However, it does appear that as a group, they offer evidence that they have acquired some ability to perceive and produce emphatic and contrastive stress in English.

Collectively, the Spanish speakers who have been in the U.S. for five years or more achieved results that were closer to the native English speakers than the one year or less group did. Still, there is a clear difference between the performance of the five year or more group (best score = 7) and the performance of the native speaker group (worst score = 8, the rest 10s).

While the 5+ group's scores fell within a small range, it appeared that there may have been some relationship between the examinee's score and the situations in which he or she used English, as shown in Table 3. The lowest scores in this group came from people who used English only when necessary and who did not use English for socializing with family and friends (numbers 2, 5 and 6). The highest scores generally came from people who lived in bilingual households (numbers 1 and 3). One of the subjects (number 4) who did not speak English at home but used English socially was a doctoral student with an extensive background in Linguistics. She received a seven, as did most of the examinees from bilingual households. This subject was much more highly educated than the others, particularly with respect to language. These results may suggest that the acquirer's type of motivation may affect his or her success in acquiring these stress patterns.

2.6.4 1- Spanish Speakers:

Table 4 - Native Speakers of Spanish: 1- Group

I.D.	yrs. in U.S.	country	1	2	3	4	5	7	8	9	10	11	12	total
1	2 mo.	Colombia	N	Y	N	N	N	N	N	N	N	Y	N	2
2	6 mo.	Spain	Y	Y	Y	N	N	N	N	Y	N	Y	N	4
3	6 mo.	Mexico	N	Y	Y	N	N	N	N	N	N	Y	N	3
4	3 mo.	Mexico	N	Y	Y	N	Y	Y	N	N	N	Y	N	5
5	6 mo.	Chile	N	Y	Y	N	Y	Y	N	N	N	Y	N	5
6	1 yr.	Bolivia	Y	N	Y	N	N	N	N	N	N	Y	N	3
7	3 mo.	Paraguay	Y	N	N	N	Y	Y	N	N	N	Y	N	4
8	3 mo.	Paraguay	N	Y	N	N	N	N	N	Y	Y	Y	N	3
9	1 mo.	Venezuela	N	Y	N	N	N	N	Y	Y	N	Y	N	3
10	10 dy.	Paraguay	Y	Y	Y	Y	Y	Y	Y	N	Y	N	N	8
		percentage	40	80	60	10	40	40	20	30	20	90	0	

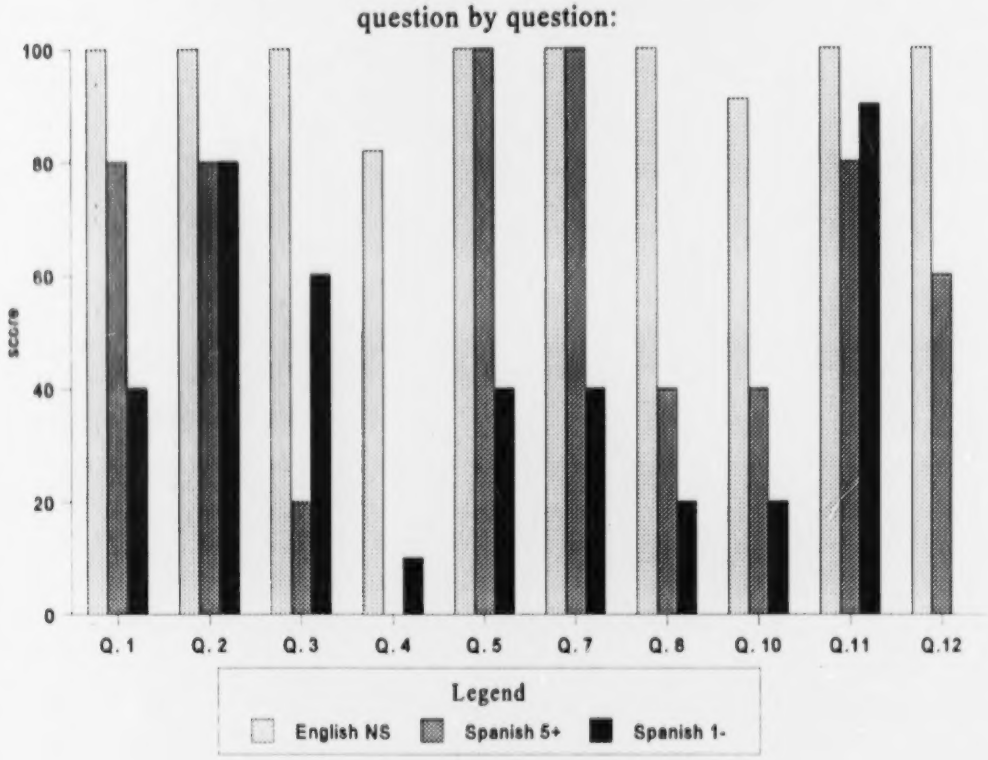
Although the group living in the U.S. for one year or less scored considerably lower on the average than the group living in the U.S. for five years or more, there was some overlap between the top of the 1- group and the bottom of the 5+ group. Three members of the 5+ group scored five points on the test, while two members of the 1- group received the same score. In only one case did a subject who had been in the U.S. for one year or less score more than five points. This examinee's responses to the questions were not consistent with the responses of other Spanish speakers (note especially numbers 4, 8, and 10), and thus are most likely the result of chance.

These results suggest a number of possible implications for language learning and acquisition. This experiment reveals a comparatively smaller difference in scores between the two groups of Spanish speakers than between the 5+ Spanish speakers and the native English speakers. That information, combined with the evidence that after five years, length of time in the U.S. matters little for acquisition of stress patterns, may mean that the acquisition curve for English stress is steep during the first years of learning, but then levels off dramatically.

2.6.5 Differences in Question Responses among the Three Groups:

Examinees in the three groups responded to each question as illustrated in Table 5.

Table 5: Results - Multiple Choice



Question 4 was the most difficult question for all three groups. This question had the lowest score of all the acceptable questions for native speakers (82%), and may have been particularly difficult because it asked the listener to contrast verb tenses. Only one (1-) Spanish speaker answered question 4 correctly. Keeping in mind that this question received the lowest score of all acceptable questions by native English speakers, it may be assumed that the contrast of verb tenses is less frequently made than other forms of contrast. If it is indeed rare, it would be difficult for the language acquirer to obtain sufficient evidence

for this form to determine how the stress is used. Thus, while the question proved difficult yet answerable for the native English speakers, it proved impossible for the Spanish speakers.

In question 3, the 1- group did noticeably better than the 5+ group. In this question, the 5+ listeners may not have recognized that the emphatic stress on *like* was meant to contrast with *don't like*. This result may have to do with the frequency of this type of stress pattern in classroom discourse versus its frequency in normal discourse. Thus, members of the 1- group, who are all taking English classes, may be more exposed to emphatic stress for the purpose of expressing likes and dislikes, and therefore may be in a better position to acquire it themselves. Further evidence to support this hypothesis comes from the fact that the only 5+ Spanish speaker who had studied English extensively was also the only examinee to answer the question correctly.

In contrast, there were several questions which the 5+ group consistently answered correctly which the 1- group did not. For example, nearly every 5+ Spanish speaker answered question five correctly ("he *drove* to Miami"), while few of the 1- speakers answered this question successfully. This may have to do with the correlates used to indicate stress. In this particular question, a flat intonation pattern was employed while lengthening the vowel in *drove*. It may be the case that the 1- Spanish speakers had not yet learned to detect vowel lengthening as a means to express phrasal stress, while the 5+ group had already internalized that function of vowel lengthening in English.

Similarly, the 5+ group performed better than the 1- group on number seven ("I can't believe she would do this to *me*.") This recording featured slightly raised intonation on the stressed element, but primarily used an increase in volume to convey stress. It may be that the 1- group was in the process of

acquiring the knowledge of how stress is conveyed through intonation contours, but had not yet figured out how it is conveyed through vowel length or volume. In this question, the slightly raised intonation may not have been sufficient to make the emphasis obvious to this group of speakers.

3. Experiment II

The second part of the test consisted of a read-aloud protocol. The examinees were given a passage from a pre-GED level (approximately sixth grade) science reader about the creation of volcanic islands.

While the multiple-choice test focused on the examinee's ability to perceive contrastive or emphatic stress, the read-aloud protocol was intended to provide evidence of the examinee's ability to produce default English stress patterns. The factual nature of the passage was also intended to contribute to the elicitation of these default stress patterns.

3.1 Subjects and Methodology

The read-aloud test was given immediately after the multiple-choice test was finished. The subjects were given as much time as needed to read silently through the passage. They were also given the option to practice reading the text aloud before being taped, in order to reduce any anxiety the subject (native or non-native) may have felt about reading out loud or about having their performance recorded. The subjects were also free to ask questions of any nature about the text itself. When the examinee was ready, the tape was turned on and the speaker stated his or her name and then read the passage aloud.

3.2 Scoring:

Following Brown (1977) (Taylor 14), the reading passage was divided into phrase groups, which were indicated by bars (see Appendix C). Copies of the passage with the phrase groups marked, as well as a tape containing the examinees' read-aloud tests were made and given to an independent scorer. The scorer and the investigator scored the recordings independently, and then all papers and cassettes were returned to the investigator. The investigator then examined the results for each native speaker to determine that the two scorers had elected the same place in the phrase for primary stress. If there were portions of the passage in which the scorers did not agree on where native speakers put primary stress, those portions of the passage were not used for scoring the non-native speakers. The evaluators' results were compiled by the investigator, and a template was made to indicate the primary stress that the majority of native English speakers used in each phrase, provided that there was broad agreement at at least the 80% threshold level.

The native speakers of American English served not only as a control group, but as the model upon which judgement of the non-native speakers' performances was based. Non-native speakers were judged only in areas where both raters agreed on the primary stress and where there was at least 80% agreement on the stress patterns by native speakers. The 80% threshold, while representing broad agreement about stress placement among native speakers, was intended to provide room for individual variation. In other words, non-native speakers had to provide the same answer as was chosen by 80% of the native speakers on a multiple-choice question to answer the question correctly. The primary stresses in these phrases were checked against those of the native speakers. Further analysis was done to determine if there was any systematicity to their errors.

By structuring the experiments in terms of having the non-native speakers approximate the stress patterns of the native speakers, it was hoped that the

problem that Brazil calls "...the problem of 'obviousness'...the vagueness of 'normal'" (58) would be overcome. Rather than asking non-native speakers to conform to some arbitrary "standard" of English stress, they were asked to approximate the patterns that the majority of native speakers used themselves for the same material.

3.3 Results:

The percentages given here indicate the highest level of agreement given by each group. Other options, which are not recorded here, received lower agreement ratings. "No clear first choice" means that a group's placement of primary stress on a phrase was so scattered that no clear preference was discernable. Some phrases are not included here because of lack of agreement between the two raters.

Phrase No.	Group	Phrase	%
1	NS	*Did you ever wonder how the Hawaiian Islands* ***gót*** *there?*	62
	5+	*Did you ever wonder how the Hawaiian Islands got* ***thére****?*	20
	1-	*Did you ever wonder how the Hawaiian Islands got* ***thére****?*	100
2	NS	***Thére*** *they sit*	87
	5+	50% ***Thére*** *they sit*; 50% *There they* ***sít***	
	1-	50% ***Thére*** *they sit*; 50% *There they* ***sít***	
3	NS	*A chain of volcánic islands in the middle of the Pacific Ocean*	75
	5+	*A* ***cháin*** *of volcanic islands in the middle of the Pacific Ocean*	33
	1-	*A* ***cháin*** *of volcanic islands in the middle of the Pacific Ocean*	66
4	NS	*They are little bits of* ***páradise*** *1,200 miles off the coast of California*	

	5+	*They are little bits of paradise 1,200 miles off the coast of Califórnia*	
	1-	No clear first choice	
5	NS	*The Hawaiian Islands were created by a* ***hót*** *spot*	100
	5+	*The Hawaiian Islands were created by a hot* ***spót***	100
	1-	*The Hawaiian Islands were created by a hot* ***spót***	100
6	NS	Lack of Rater Agreement	
7	NS	*A hot spot is like a* ***blówtorch***	100
	5+	*A hot spot is like a* ***blówtorch*** (50%)/*blow****tórch*** (50%)	
	1-	*A hot spot is like a blow****tórch***	60
8	NS	*It* ***héats*** *the crust above it*	75
	5+	*It* ***héats*** *the crust above it*	100
	1-	*It* ***héats*** *the crust above it*	60
9	NS	*so that it* ***expánds*** *and bubbles up*	100
	5+	*so that it* ***expánds*** *and bubbles up*	80
	1-	*so that it* ***expánds*** *and bubbles up*	80
10	NS	Lack of Rater Agreement	
11	NS	Lack of Rater Agreement	
12	NS	*the* ***lárgest*** *of the Hawaiian Islands*	100
	5+	*the* ***lárgest*** *of the Hawaiian Islands*	80
	1-	*the* ***lárgest*** *of the Hawaiian Islands*	60

13	NS	Lack of Rater Agreement	
14	NS	*Hawaii will move **óff** the hot spot*	100
	5+	no clear first choice	
	1-	*Hawaii will move off the hot **spót***	80
15	NS	*and a **néw** volcanic island will rise from the ocean floor*	100
	5+	no clear first choice	
	1-	no clear first choice	
16	NS	*This is the way **áll** of the Hawaiian Islands have been formed.*	100
	5+	*This is the way **áll** of the Hawaiian Islands have been formed.*	30
	1-	*This is the way **áll** of the Hawaiian Islands have been formed.*	40

3.3.1 Summary of Findings:

After phrase groups with a lack of agreement between the raters or among the native speakers were eliminated, a total of 15 phrase groups were left with which to evaluate the non-native speakers. There were several instances in which the native speakers of Spanish as a whole exhibited stress patterns which were consistently different from those of the native English speakers. For example, in the first phrase group, "*Did you ever wonder how the Hawaiian Islands got there?*" The following patterns emerged:

Spanish speakers:

/Did you ever wonder how the Hawaiian Islands got **thére**?/

English speakers:
/Did you ever wonder how the Hawaiian Islands **gót** there?/

Native speakers of Spanish most often chose to emphasize *there*, while English speakers emphasized *got*. In addition, the following pattern emerged consistently:

Spanish speakers:
/The Hawaiian islands were created by a hot **spót**./

English speakers:
/The Hawaiian islands were created by a **hót** spot./

Every native English speaker talked about ***hot spots***, while every native Spanish speaker discussed ***hot spots***. In the sentences that followed, while native English speakers subordinated the primary stress in *hot spot* to whatever the new idea was in the sentence, Spanish speakers tended to continue to stress *spot* whenever the compound arose. Similarly, in the phrase "*...and a new volcanic island will rise from the ocean floor.*", only one native Spanish speaker, who had been living in the U.S. for over fifty years in bilingual households, emphasized *new* as the native speakers did.

While all Spanish speakers read about ***hot spots***, there was much less uniformity with the 1-word compound ***blowtorch***, which Spanish speakers in both groups stressed only slightly more often on the second syllable (***blowtorch***) than on the first. Judging from the results of this test, This difference might be the result of

Spanish speakers not recognizing *hot spot*, which is orthographically two words, as a compound, while many may have recognized *blowtorch* as such.

3.3.2 5+ Spanish Speakers versus 1- Spanish Speakers:

Overall, it appears that the 5+ Spanish speakers were more successful in approximating the stress patterns of the native English speakers than were the 1- Spanish speakers. In the first sentence, "*Did you ever wonder how the Hawaiian Islands got there?*", the 1- speakers invariably placed the primary stress on the word *there*. In the 5+ group, while several speakers still stressed *there*, there was much more variation. Still, not a single 5+ speaker emphasized *got* as the native English speakers did. Similarly, while a great deal of variation existed, it appeared that in the phrase "*Hawaii will move off the hot spot*" that the 1- speakers generally stressed *spot,* while the 5+ group generally emulated the native speakers and chose to stress *off*.

5+ Spanish:
/Hawaii will move **óff** the hot spot/

1- Spanish:
Hawaii will move off the hot **spót**/

4. Directions for Further Study:

The results of this study yield many more questions than answers. We can divide those questions up into the theoretical, the pedagogical and the social.

As was stated in the introduction, this paper cannot hope to do more than touch briefly on the issues surrounding the various theories of how second language phonology is acquired. However, it is hoped that the information that has been presented here will be useful in future analyses of phonological acquisition.

Looking at this data from the perspective of Archibald's Learning Theory, the widely varying choices for default stress given by the 5+ speakers in the read-aloud test might be explained by the hypothesis that these learners are exhibiting transitional state elasticity. Transitional state elasticity is the variation that results when a learner has not yet made the decision as to which way the parameters in question should be set (1994, 226).

According to Archibald's formal model of learning L2 prosodic phonology (1994), parameter resetting only occurs when a threshold amount of both positive and indirect negative evidence for that parameter is crossed. Archibald, following Dresher and Kaye (1990), sees the acquisition of L2 stress as the resetting of a large number of parameters. Following this analysis, it may be that the 5+ Spanish speakers in this study who use English only for work and only when absolutely necessary are not getting as much evidence as those speakers who are using English in a larger variety of situations. Therefore, they may not be able to reset as many parameters as their counterparts who use English socially. Still, the scores show that if Archibald's analysis is both correct and applicable to this group of subjects, even the best 5+ Spanish speakers are not successful in resetting every parameter. It is important to consider the many possibilities, from affective/pedagogical reasons to reasons based in theories of generative phonology, to explain the fact that the 5+ speakers seem to acquire the English stress patterns to a point, then stop.

For teachers and education researchers, this study serves to measure the baseline of stress acquisition, as the Spanish speakers in this sample have acquired their English stress patterns to varying degrees with no pedagogical assistance. There are many possibilities for continued research into the best ways to teach prosody to learners of English. One possibility would be to do a longitudinal study of English learners to see whether specific types of instruction yield improvements above and beyond those which would occur with no intervention at all.

It also remains to be seen why learners plateau in their acquisition of stress so early on. If we can learn why learners plateau so early, perhaps we can learn how to help them to continue acquiring English stress patterns and improve their communicative ability.

Finally, from a sociolinguistic standpoint it would be interesting to study how L1 English speakers' perceptions of L2 speakers are affected by the L2 speaker's incomplete acquisition of English stress patterns. More generally, the study of the effects of transfer of one language's prosodic system onto another language would be valuable for learning more about how language learners cope with new prosodic systems.

5. Conclusion:

It appears that these Spanish speakers who have been living in the United States for at least five years have acquired some ability to perceive and produce English stress. However, it also appears that the acquisition curve is very steep and plateaus quickly. While the 5+ Spanish speakers did noticeably better on both tests than the 1- Spanish speakers, on average the two groups' performances were closer together than the 5+ group was to the native speakers of English. Additionally, it did not seem to make any difference whether the subjects in the 5+ group had been living in the English-speaking environment

for five years or fifty-five years. The only factor that seemed to have an effect on the scores of the 5+ group was their level of exposure to English. It remains to be seen whether any correlation will be established between level of education and ability to perceive and produce English stress.

These findings are important to language educators and researchers alike. Knowing how much of the English stress system non-native speakers are acquiring lets educators know whether any work done with students on these aspects of pronunciation is really helping them. It can also help the creators of classroom materials to know what aspects of prosody to focus on. It proclaims that prosody should be taught and shows the importance of focusing on prosody in developing the communicative ability of the student. For researchers in Linguistics, it poses many questions about the nature of phonological acquisition. Most importantly, it reinforces the notion that the prosodic system of a second language can be just as foreign as its grammar or vocabulary, and that we should be conscious of the challenges in communication that it poses to those who are learning the language.

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Which sentence - A, B or C - could have come <u>before</u> the sentence on the tape? (In other words, the question sentence is a <u>response</u> to the options). Use the speaker's emphasis to help you decide.

1. A. Should I give the blue gloves to Mary?
   B. Who should I give the blue hat to?
   C. Which hat should I give Mary?

2. A. Should I give the yellow book to Sam?
   B. Which book should I give Josh?
   C. What should I give Josh?

3. A. What kind of jam do you like?
   B. Joe is the only one who likes strawberry jam.
   C. You don't like strawberry jam, do you?

4. A. Are Alison and Jay going to go to the movies?
   B. Who did Alison go to the movies with?
   C. Where did Alison and Jay go?

5. A. Where did he go?
   B. Who drove to Miami?
   C. How did he get there?

6. (Omitted from scoring)
   A. Personally, I prefer sculpture.
   B. I think this painting is beautiful.
   C. I think the other painting is beautiful.

7. A. I know she's done this to other people.
   B. She doesn't seem capable of doing this.
   C. I didn't think she would go so far as to do this.

8. A. We're having some unusual weather right now.
   B. Today's high was 55 degrees.
   C. Tomorrow's low will be 40 degrees.

9. (Omitted from scoring)
   A. Sam won't take his new girlfriend to Harry's Restaurant.
   B. Sam and Jackie would only go to Harry's Restaurant.
   C. Sam and Jackie would like to go someplace else.

10. A. Joe likes to work on his projects with a group,
    B. The group makes Joe acknowledge everyone's contributions.
    C. We always make sure everyone's work is recognized.

11. A. I know he doesn't always act very friendly, but
    B. I know it seems that he favors Maurice, but
    C. I know Nancy doesn't like you, but

12. A. If anyone else finds out, it won't matter.
    B. We'd better kill him before he discovers our plan and fights back.
    C. He'll be really mad if he finds out.

Which sentence - A, B or C - could have come before the sentence on the tape? (Use the speaker's emphasis to help you decide.)

TAPE: Give Mary the blue hat.

1. A. Should I give the blue gloves to Mary? (gloves)
   *B. Who should I give the blue hat to?
   C. Which hat should I give Mary? (blue)

TAPE: Give Josh the yellow book.

2. A. Should I give the yellow book to Sam? (Josh)
   *B. Which book should I give Josh?
   C. What should I give Josh? (book)

TAPE: I like strawberry jam.

3. A. What kind of jam do you like? (strawberry)
   B. Joe is the only one who likes strawberry jam. (I)
   *C. You don't like strawberry jam, do you?

TAPE: Alison and Jay went to the movies.

4. *A. Are Alison and Jay going to go to the movies?
   B. Who did Alison go to the movies with? (Jay)
   C. Where did Alison and Jay go? (movies)

TAPE: He drove to Miami (flat intonation, lenghened V in *drove*)

5. A. Where did he go? (Miami)
   B. Who drove to Miami? (he)
   *C. How did he get there?

6. A. Personally, I prefer sculpture. (painting)
   *B. I think this painting is terrible.
   C. I think the other painting is beautiful. (this)

TAPE: I can't believe she would do this to me! (big increase in volume on *me*)

7. *A. I know she's done this to other people.
   B. She doesn't seem capable of doing this. (she)
   C. I didn't think she would go so far as to do this. (this)

TAPE: Tomorrow's high will be sixty degrees.

8. A. We're having some unusual weather right now. (degrees)
   B. Today's high was 55 degrees. (tomorrow)
   C. Tomorrow's low will be 40 degrees. (high)

TAPE: Sam and Jackie always went there. (flat intonation, lenthening on *there*)

9. A. Sam won't take his new girlfriend to Harry's Restaurant. (Jackie)
   B. Sam and Jackie would only go to Harry's Restaurant. (always)
   *C. Sam and Jackie would like to go someplace else.

TAPE: But he never wants to give anyone else credit.

10. *A. Joe likes to work on his projects with a group,
    B. The group makes Joe acknowledge everyone's contributions, (wants)
    C. We always make sure everyone's work is recognized, (he)

TAPE: He likes you (V lengthening on *likes*)

11. *A. I know he doesn't always act very friendly, but
    B. I know it seems that he favors Maurice, but (you)
    C. I know Nancy doesn't like you, but (he)

TAPE: If he finds out he'll kill us!

12. *A. If anyone else finds out, it won't matter. (he)
    B. We'd better kill him before he discovers our plan and fights back.
    C. He'll be really mad if he finds out. (kill)

Name: Group: Appendix C

5. THE WORLD'S HOT SPOTS

DID YOU ever wonder how the Hawaiian Islands got there? There they sit, a chain of volcanic islands in the middle of the Pacific Ocean. They are little bits of paradise 1,200 miles off the coast of California.

The Hawaiian Islands were created by a **hot spot**. A hot spot is a small, unusually hot area under the earth's crust. A hot spot is like a **blowtorch**. It heats the crust above it so that it expands and bubbles up. The result is another kind of volcanic eruption.

HOT SPOT. A very hot area of the earth's mantle right below the crust.

BLOWTORCH. A tool that uses a mixture of gas and air under pressure. It makes a very hot flame.

Right now the island of Hawaii, the largest of the Hawaiian Islands, sits on top of a hot spot in the middle of the Pacific Ocean floor. But as the Pacific plate slowly moves northwest, Hawaii will move off the hot spot and a new volcanic island will **rise from the ocean floor. This is the way all of the Hawaiian Islands have been formed.**

The island of Hawaii sits on top of a hot spot.

BEST COPY AVAILABLE

How many years have you been living in the U.S.?_____

Name:_____

1. What country are you from?

2. Have you studied English in the U.S.?

   If yes, how many years have you studied English in the U.S.?

3. Answer these questions if you are now taking English classes:

   How many hours per week do you go to class?

   How many hours per day do you use English outside of class?

4. If you studied English in the country you came from, how many years did you study there?

5. Where do you speak English?
   (Circle as many as you want)

   in class at home with friends at work other:_____

For the next questions, circle the number that is closest to what you think. For example, if you agree strongly with the statement, circle number 5 for "strongly agree". If you do not agree or disagree (if you are neutral), choose number 3. If you think you cannot answer the question, circle Not Applicable (N/A).

6. I feel good about using English.

   strongly disagree 1 2 3 4 5 strongly agree N/A

7. I do not like the English language.

   strongly disagree 1 2 3 4 5 strongly agree N/A

8. I feel comfortable working with and being friends with English speakers.

   strongly disagree 1 2 3 4 5 strongly agree N/A

9. Even when I say the words exactly right in English, sometimes English speaking people don't understand me.

   strongly disagree 1 2 3 4 5 strongly agree N/A

10. Complete the following statement any way you want: "I speak English because...."